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418-05

AMENDMENTS TO THE CLAIMS

1.(currently amended): A network for forming a VPN on a shared network and communicating via the VPN, comprising:

a core network of the VPN formed by ~~a label-switching~~ an MPLS (Multi-Protocol Label Switch) network;

access networks formed by VLANs to access said core network; and

~~interface devices~~ edge routers provided at edges of the ~~label-switching~~ MPLS network for interfacing said ~~label-switching~~ MPLS network and the VLANs, wherein each of said edge routers includes

a first table for storing correspondence between VLAN identifiers (VIDs) contained in VLAN packets and VPN labels contained in MPLS packets;

means for finding a VPN label, which corresponds to a VLAN identifier (VID) of a VLAN packet, from said first table;

a route decision unit for deciding a route which directs an MPLS packet to a receive-side edge router; and

a second table for storing forwarding labels, which specify routes decided by said route decision unit, mapped to addresses of receive-side edge routers;

means for finding a receive-side edge router corresponding to a destination of a packet and finding a forwarding label, which corresponds to the receive-side edge router, from said second table;

a MPLS packet generation means for generating an MPLS packet that contains said VPN label and said forwarding label and sending this MPLS packet to the MPLS network;
and

means for finding a VID, which corresponds to a VPN label contained in an MPLS packet received from the MPLS network, from said first table, generating a VLAN packet having this VID and sending this VLAN packet to a VLAN indicated by this VID.

Claims 2-4. (cancelled)

5.(currently amended): The network according to claim [[4]] 1, wherein an edge router which constructs the VPN and is connected to a VLAN sends another edge router an address set composed of an address of a VLAN-compatible device connected to the first-mentioned edge router and the address of this edge router, and each edge router creates a routing table based upon the received information; and

 said transmit-side edge router finds a receive-side edge router, which corresponds to the destination of the packet, from said routing table.

6.(original): The network according to claim 5, wherein an edge router transmits no address information to an edge router to which is connected a VLAN that has been prohibited from communicating.

7.(currently amended): The network according to claim [[3]] 1, wherein said transmit-side edge router discards a VLAN packet having a VID value that is greater than a set value.

8.(currently amended): A network for forming a VPN on a shared network and communicating via the VPN, comprising:

a core network of the VPN formed by a label switching network;

access networks formed by VLANs to access said core network; and

interface devices provided at edges of the label switching network for interfacing said label switching network and the VLANs,

wherein said interface devices are edge routers provided at edges of an MPLS (Multi-Protocol Label Switch) network serving as said label switching network, said edge routers including:

a transmits-side edge router for converting a packet, which is sent from a VLAN, to an MPLS packet and transmitting the packet to the MPLS network; and

a receive-side edge router for converting the MPLS packet, which has been received from the MPLS network, to a VLAN packet and directing the VLAN packet to a VLAN that belongs to the same VPN as that of a VLAN on the transmit side, and

~~The network according to claim 2,~~ wherein said transmit-side edge router inserts user priority information, which is contained in a tag of a VLAN packet, into a label of an MPLS network, and said receive-side edge router inserts IP precedence information, which is contained in the label of an MPLS packet, into the tag of a VLAN packet as user priority information of the VLAN.

9.(currently amended): An edge router in a network for forming a VPN on a shared network, forming a core network of the VPN by an MPLS network and forming an access

network, which is for accessing the core network, by a VLAN, ~~wherein a transmit-side edge router comprises~~ comprising:

a first table for storing correspondence between VLAN identifiers (VIDs)

contained in VLAN packets and VPN labels contained in MPLS packets;

means for finding a VPN label, which corresponds to a VLAN identifier (VID) of a VLAN packet, from said first table;

a route decision unit for deciding a route which directs an MPLS packet to a receive-side edge router; and

a second table for storing forwarding labels, which specify routes decided by said route decision unit, mapped to addresses of receive-side edge routers;

means for finding a receive-side edge router corresponding to a destination of a packet and finding a forwarding label, which corresponds to the receive-side edge router, from said second table;

means for storing a corresponding relationship between VLAN identifiers (VIDs) and VPN labels serving as VPN identifiers; and

an MPLS packet generating unit for finding a VPN label corresponding to a VID, which is contained in a packet sent from the VLAN, using the corresponding relationship, generating an MPLS packet that includes this said VPN label and said a forwarding label and sending this MPLS packet to the MPLS network; and

means for finding a VID, which corresponds to a VPN label contained in an MPLS packet received from the MPLS network, from said first table, generating a VLAN packet having this VID and sending this VLAN packet to a VLAN indicated by this VID.

10.(cancelled)

Original

11. The edge router according to claim 10, wherein said MPLS packet generating unit receives from edge routers which are connected to other VLANs constituting said VPN, information comprising a combination of addresses of these edge routers and addresses of VLAN-compatible devices connected to these edge routers, creates a routing table based upon said received information and finds said receive-side edge router, which corresponds to the destination of the packet, from said routing table.

12-14.(cancelled)

15.(currently amended): The edge router according to claim [[14]] 9, wherein said MPLS packet generating unit receives from edge routers which are connected to other VLANs constituting said VPN, information comprising a combination of addresses of these edge routers and addresses of VLAN-compatible devices connected to these edge routers, creates a routing table based upon said received information and finds said receive-side edge router, which corresponds to the destination of the packet, from said routing table.